

REMARKS/ARGUMENTS

The Office Action has been carefully considered. It is respectfully submitted that the issues raised are traversed, being hereinafter addressed with reference to the relevant headings appearing under the Detailed Action of the Office Action.

The Applicant has amended the claims. The Applicant respectfully submits that amendments to the claim set is fully supported by the originally filed specification.

Priority

The Examiner has noted that a certified copy of the Australian application as required by 35 U.S.C. 119(b) has not yet been received. We therefore enclose a certified copy of the Australian application in order to overcome this objection.

Information Disclosure Statement

The information disclosure statement (IDS) was filed in error. At this stage, the Applicant has not received any foreign search reports relating to this invention and is unaware of any relevant prior art.

Specification

The Examiner has requested the Applicant's cooperation in correcting any errors of which the applicant has become aware in the specification. In particular, the Applicant has amended the following pages:

- pg 548: deleted the phrase "Please note that pages 549-554 are intentionally missing"
- pages 1063 to 1067: deleted cross referenced materials
- inserted new page 549 - 554 including the phrase "Pages 549-554 are intentionally left blank".

The Applicant is not aware of any further errors in the specification.

Claim Objections – 35 USC § 112

The Examiner has requested that the antecedent basis in the specification for all claimed elements be shown. We have therefore provided the following list of claimed features and specific examples where antecedent basis for the claimed features can be found in the specification.

Claim 1

- integrated circuit: refer to at lines 22 to 23 of page 571 where it is stated that 'A "QA Chip"[the integrated circuit] is a quality assurance chip can allows certain security

functions and protocols to be implemented.' Also refer to Figure 389 of the QA circuit (an integrated chip).

- processor: refer to Figure 389, the integrated circuit includes a processor in the form of a Central Processing Unit (CPU).
- on board system clock for generating a clock signal: refer to Figure 389, the Analogue Unit produces a clock signal (SysClk).
- clock trim circuitry: refer to Figure 389, the integrated circuit includes a Trim Unit which is the clock trim circuitry.
- receive an external signal: refer to lines 7 and 8 of page 708, the QA chip in the *Trim Mode* operates *"by measuring the number of system clock cycles that occur inside the chip from the receipt of the Trim Mode command byte"*.
- determine either the number of cycles of the clock signal during a predetermined number of cycles of the external signal, or the number of cycles of the external signal during a predetermined number of cycles of the clock signal: refer to lines 1 through to 30 of page 708.
- store a trim value in the integrated circuit, the trim value having been determined on the basis of the determined number of cycles: refer to line 9 of page 708, *"the data byte is copied to the trim register"*.
- use the trim value to control the internal clock frequency: refer to lines 3 to 5 of page 708 where it is stated that *"[t]he purpose of Trim Mode is to set the trim value (an internal register setting) of the internal ring oscillator so that Flash erasures and writes are of the correct duration. Thus, the trim value is used to control the correct duration of the internal clock frequency."*

Claim 2

- "output the result of the determination step": refer to lines 9 and 10 where it is stated *"...the current value of the count is transmitted to the outside world"*.
- "receive the trim value from an external source": refer to lines 14 to 21 where the trim value may be received from an external source such as an external user.

Claim 3

- "the integrated circuit includes non-volatile memory and includes storing the trim value in the memory": refer to lines 27 and 28 of page 577 where it is stated that *"the printer operating parameters are stored in the non-volatile memory of the Print Engine's on-board PRINTER_QA chip"*. Additionally refer to line 20 of page 711 where it is stated that *"The memory within the QA Chip contains some non-volatile (Flash) memory to store the variables required by the authentication protocol. As the trim value is used for the authentication protocol, this is also a variable which is stored in non-volatile memory."*

Claim 4

- "the memory is flash RAM": refer to above for claim 3.

Claim 5

- "loading the trim value from the memory into a register and using the trim value in the register to control a frequency of the internal clock": refer to lines 28 to 29 where it is

stated that "...the final value v [the trim value] is established (and stored in the trim register)". Additionally, refer to comments regarding claim 1 and the phrase "use the trim value to control the internal clock frequency".

Claim 6

- "the trim value is determined and stored permanently in the integrated circuit": refer to lines 27 and 28 of page 577 where non-volatile memory is referred to which can permanently store the trim value.

Claim 7

- "one or more fuses that are intentionally blown, thereby preventing the stored trim value from subsequently being changed": refer to lines 36 and 37 of page 708, and additionally lines 1 to 7 of page 709.

Claim 8

- "the system clock further includes a voltage controlled oscillator (VCO), an output frequency of which is controlled by the trim value": As shown in Figure 389, the trim value (Trim) is received from the Trim Unit which is used, as shown in Figure 390 to control the voltage controlled oscillator (ring oscillator).

Claim 9

- "digital to analog convertor configured to convert the trim value to a voltage and supply the voltage to an input of the VCO, thereby to control the output frequency of the VCO": refer to Figures 389, 390, and 391.

Claims 10, 11, 12

- "configured to operate under conditions in which the signal for which the number of cycles is being determined is at a considerably higher frequency than the other signal": refer to lines 18 to 20 of page 3.

Claim 13

- "disposed in a package having an external pin for receiving the external signal": as shown in Figure 389, the external signal "Sclk" has an external pin which the signal is received.

Claim 14

- the pin is a serial communication pin configurable for serial communication when the trim value is not being set: refer to lines 13 and 14 of page 707.

Claim 15

- Refer to lines 19 to 35 of page 716 where temperature dependent compensation is discussed.

Claim 16

- Refer to lines 19 to 35 of page 716.

Claim 17

- Refer to lines 27 to 30 of page 708.

Drawings

The Examiner has requested that the Applicant show where each and every claimed element or step is shown in the Drawings. We therefore provide the following list of elements with corresponding figure references.

- integrated circuit: Figure 389.
- processor: refer to Figure 389 and the Central Processing System.
- on board system clock: refer to Figure 389 and the Analogue Unit producing a clock signal.
- clock trim circuitry: refer to Figure 389 and the Trim Unit.
- non-volatile memory: refer to Figure 389 and the Memory Interface Unit and Memory Components.
- fuses: Figure 389
- voltage controlled oscillator: refer to Figure 390 and the ring oscillator.
- "digital to analog convertor": refer to Figures 389, 390, and 391.

The previous reference to Fig. 413 has been deleted as Fig. 413 has been deleted in preliminary amendment sent May 3, 2004. It has now been replaced with an entirely new Fig. 413.

In relation to the steps claimed in claim 1 which the integrated circuit is configured to perform, we enclose new Figure 413 showing the steps performed by the integrated circuit. The drawing is fully supported by the specification, as indicated earlier. We have additionally amended page 19 to include the new Figure 413 in the list of Figures. Therefore, we respectfully submit that all claimed elements and steps are shown in the drawings.

The Applicant has moved the following Figures as follows:

- Fig. 410 from Sheet 330/331 to **329/331**
- Fig. 411 from Sheet 331/331 to **330/331**

The Applicant also encloses replacement drawings sheets 329/331 and 330/331. The Applicant submits that these amendments introduce no new matter.

Claim Rejections – 35 USC § 102

At pages 4 to 7 of the Office Action, the Examiner has rejected claims 1, 3, 5 to 8, 10 and 13 under 35 U.S.C. §102(b) as being anticipated by Beer et al. A claim is anticipated if all of its limitations are present in a single reference in the prior art. As all of the limitations of the amended claims are not present in Beer et al, as indicated by the Examiner in the Office Action under the section "Allowable subject matter", the amended claims are not anticipated by the above-mentioned documents and the rejection is traversed. Reconsideration and withdrawal of the rejection is respectfully requested.

The Examiner has indicated that Beer et al shows all claimed features in claim 1. However, the Applicant respectfully disagrees with the Examiner.

However, in order to more clearly distinguish Beer et al, claim 1 has now been amended to include allowable matter, as indicated by the Examiner, from claim 2. As such, claim 2 has been subsequently cancelled. We therefore respectfully submit that the amended claims are not anticipated by Beer et al.

The Applicant encloses new drawing sheet 331a) containing replacement Fig. 413.

In view of the foregoing, it is respectfully requested that the Examiner reconsider and withdraw the rejections under 35 U.S.C. §112 and 35 U.S.C. §102(b). The present application is believed to be in condition for allowance. Accordingly, the Applicant respectfully requests a Notice of Allowance of all the claims presently under examination.

Very respectfully,

Applicants:



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Amendments to the Drawings

The Applicant encloses new drawing sheet 331 containing replacement Fig. 413.

The Applicant has moved the following Figures as follows:

- Fig. 410 from Sheet 330/331 to **329/331**
- Fig. 411 from Sheet 331/331 to **330/331**

The Applicant also encloses replacement drawings sheets 329/331 and 330/331. The Applicant submits that these amendments introduce no new matter.